

CLAIMS

[1] A heat sink member comprising:

a first layer (1, 11) mainly composed of Cu;

5 a second layer (2, 2a) mainly composed of Mo, and

a first brazing layer (4, 4a, 14) consisting of an Sn-Cu alloy arranged between said first layer and one surface of said second layer for bonding said first layer and said second layer to each other.

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[2] The heat sink member according to claim 1, wherein

the content of Sn in said first brazing layer is at least 1 mass %.

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[3] The heat sink member according to claim 1 or 2, wherein

the content of Sn in said first brazing layer is not more than 13 mass %.

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[4] The heat sink member according to any of claims 1 to 3, wherein

said second layer mainly composed of Mo is formed by sintering.

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[5] The heat sink member according to any of claims 1 to 4, wherein

said first layer and said second layer have thicknesses of at least 0.1 mm and not more than 3.0 mm.

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[6] The heat sink member according to any of claims 1 to 5, further comprising:

a third layer (3, 3a, 13) mainly composed of Cu, and

a second brazing layer (5, 5a, 15) consisting of an Sn-Cu alloy arranged between the other surface of said second layer and said third layer for bonding said second layer and said third layer to each other, wherein

a semiconductor element (6) is arranged on the surface of said third layer.

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[7] The heat sink member according to claim 6, wherein

the content of Sn in said second brazing layer is at least 1 mass % and not more than 13 mass %.

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[8] The heat sink member according to claim 6 or 7, wherein

said second layer is arranged on a region of the surface of said first layer corresponding to a region where said semiconductor element is arranged.

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[9] The heat sink member according to any of claims 6 to 8, wherein

said third layer has a thickness of at least 0.1 mm
5 and not more than 3.0 mm.

[10] A method of manufacturing a heat sink member, comprising steps of:

arranging a first brazing layer (4, 4a, 14)
10 consisting of an Sn-Cu alloy between a first layer (1, 11) mainly composed of Cu and one surface of a second layer (2, 2a) mainly composed of Mo; and

bonding said first layer and said second layer to each other by melting said first brazing layer.

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[11] The method of manufacturing a heat sink member according to claim 10, wherein

the content of Sn in said first brazing layer is at least 1 mass %.

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[12] The method of manufacturing a heat sink member according to claim 10 or 11, wherein

the content of Sn in said first brazing layer is not more than 13 mass %.

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[13] The method of manufacturing a heat sink member according to any of claims 10 to 12, further comprising a step of forming said second layer mainly composed of Mo by sintering.

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[14] The method of manufacturing a heat sink member according to any of claims 10 to 13, wherein

said first layer and said second layer have thicknesses of at least 0.1 mm and not more than 3.0 mm.

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[15] The method of manufacturing a heat sink member according to any of claims 10 to 14, further comprising a step of previously bonding said first layer (11) and said first brazing layer (14) to each other in advance of the step of arranging said first brazing layer between said first layer and said second layer.

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[16] The method of manufacturing a heat sink member according to any of claims 10 to 15, wherein

the step of arranging said first brazing layer between said first layer and said second layer includes a step of arranging the first brazing layer between said first layer and one surface of said second layer and arranging a second brazing layer (5, 5a, 15) consisting of an Sn-Cu alloy between the other surface of said second

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layer and a third layer (3, 3a, 13) mainly composed of Cu,
and

the step of bonding said first layer and said second
layer to each other includes a step of bonding said first
5 layer and said second layer to each other and bonding said
second layer and said third layer to each other by melting
said first brazing layer and said second brazing layer.

[17] The method of manufacturing a heat sink member
10 according to 16, wherein

the content of Sn in said second brazing layer is at
least 1 mass % and not more than 13 mass %.

[18] The method of manufacturing a heat sink member
15 according to claim 16 or 17, wherein

a semiconductor element (6) is arranged on the
surface of said third layer,

the method further comprising a step of preparing
said second layer arranged on a region of the surface of
20 said first layer corresponding to a region where said
semiconductor element is arranged in advance of the step
of arranging said first brazing layer between said first
layer and said second layer.

25 [19] The method of manufacturing a heat sink member

according to any of claims 16 to 18, wherein

said third layer has a thickness of at least 0.1 mm
and not more than 3.0 mm.